

# **GLOBE AT A GLANCE**

## TOP500's top 10 supercomputers

The TOP500 list ranks the 500 most powerful commercially available computer systems based on their ability to solve a dense system of linear equations (i.e., the LINPACK benchmark [1]). Therefore, any supercomputer—no matter its architecture—can make it into the list, as long as it is able to solve a dense system of linear equations using floating-point arithmetic. The following ranking is from November 2012. The list in its entirety is available at www.top500.org.

### JUQUEEN

**Specs:** IBM BlueGene/Q, Power

BQC 16C 1.6 GHz, Custom

interconnect

Country: Germany

**Site:** Forschungszentrum Juelich

 Cores:
 393,216

 R<sub>max</sub> (Pflops):
 4.14

 R<sub>peak</sub> (Pflops):
 5.03

 Power (MW):
 1.97

Memory (TB): 393.22

## SuperMUC

Specs: IBM iDataPlex DX360M4, Xeon

E5-2680 8C 2.7 GHz, Infiniband

FDR

Country: Germany

Site: Leibniz Rechenzentrum

Cores: 147,456

R<sub>max</sub> (Pflops): 2.90

R<sub>peak</sub> (Pflops): 3.19

Power (MW): 3.42

Memory (TB): —

#### Fermi

**Specs:** IBM BlueGene/Q,

Power BQC 16C 1.6 GHz,

Custom interconnect

Country: Italy
Site: Cineca
Cores: 163,840

R<sub>max</sub> (Pflops): 1.73 R<sub>peak</sub> (Pflops): 2.10 Power (MW): 0.82 Memory (TB): —

#### **LEGEND**

 $\mathbf{R}_{\text{max}}$  Maximal LINPACK performance achieved

**R**<sub>neak</sub> Theoretical peak LINPACK performance

**Pflops** Peta (i.e., quadrillion) floating-point operations per second

MW Megawatts (i.e., million watts)

TB Terabytes (i.e., trillion bytes)

[1] For more on the LINPACK benchmark, visit www.netlib.org/utk/people/JackDongarra/faq-linpack.html

## Tianhe-1A

Specs: NUDT YH MPP, Xeon X5670 6C

2.93 GHz, NVIDIA 2050

Country: China

Site: National Supercomputing

Center in Tianjin

**Cores:** 186,368

**R**<sub>max</sub> (**Pflops**): 2.57

**R**<sub>peak</sub> **(Pflops):** 4.70

Power (MW): 4.04

Memory (TB): 229.38

## K computer

**Specs:** Fujitsu SPARC64 VIIIfx 2.0 GHz,

Tofu interconnect

**Country:** Japan

**Site:** RIKEN Advanced Institute for

Computational Science

**Cores:** 705,024

**R**<sub>max</sub> (**Pflops**): 10.51

**R**<sub>peak</sub> (**Pflops**): 11.28

**Power (MW):** 12.66

**Memory (TB):** 1,410.05